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“Healthy deployers”: Nature and Trends of Health Care Utilization during the Year prior to Deployment to OEF/OIF, Active Components, U.S. Armed Forces, January 2002-December 2006

A major objective of deployment health programs is to maximize the health and fitness of deploying service members. Thus, for example, service members who are being treated for or convalescing from serious medical conditions (e.g., major trauma, cancer) may be temporarily or permanently disqualified from deploying. At the same time, service members who are healthy may access medical care at higher rates than usual while preparing to counter deployment-related health threats (e.g., immunizations). As a result, changes in the utilization of health care around the time of deployment reflect the natures and relative importance of various determinants of “healthy deployer” efforts.

For this report, we assessed the nature and trends of health care utilization of deployers during the year prior to deploying to Afghanistan or Iraq. Specifically, we documented the ambulatory and hospitalization experiences of deployers to Afghanistan or Iraq during sequential 30-day periods within the 360 days prior to deployment. We expected that health care utilization for serious conditions (e.g., hospitalizations) would sharply decrease, and the nature of care in outpatient settings (e.g., acute treatment, preventive care) would markedly change, around the time of deployment.

Methods:

The surveillance period was 1 January 2002 through 31 December 2006. The surveillance population included each member of an active component of the U.S. Armed Forces who deployed to Operation Enduring Freedom (“OEF”) or Operation Iraqi Freedom (“OIF”) during the surveillance period. Because participants in major joint operations serve in diverse and often multiple locations, for this report, deployers to OEF and OIF are referred to as deployed to “Afghanistan” and “Iraq,” respectively. All documented deployments of active component service members during the surveillance period were considered index events for analysis purposes.

All hospitalizations and ambulatory visits that occurred within 360 days prior to the date of a deployment were identified by the first 3 digits of the ICD-9-CM code of the primary (first-listed) diagnosis. For each 3-digit level diagnosis, the number of hospitalizations and ambulatory visits during sequential 30-day periods prior to deployment (e.g., 0-30, 31-60, 61-90...301-330, 331-360) were calculated. If individuals had more than one ambulatory visit or hospitalization with the same diagnosis during a 30-day period, only one was used for analysis.

For summary purposes, rates of ambulatory visits

and hospitalizations during each 30-day period prior to a deployment were calculated for each major diagnostic category (including V-coded diagnoses) of the ICD-9-CM.

Results:

During the 5-year surveillance period, the medical experiences of 696,572 service members were assessed during 879,504 person-years (p-yrs) of follow-up within 360 days of a deployment. Approximately one-fourth (25.3%) of all service members included in the surveillance had more than one deployment during the period (**Table 1**).

Table 1. Characteristics of deployers to OIF/OEF, active components, U.S. Armed Forces, January 2002-December 2006

	Deployments	
	Number	% of total
Service		
Army	394,566	56.6
Navy	50,967	7.3
Air Force	143,293	20.6
Marine Corps	107,746	15.5
Gender		
Female	74,134	10.6
Male	622,438	89.4
Age group		
<20	3,518	0.5
20-24	210,374	30.2
25-29	211,784	30.4
30-39	193,123	27.7
40-49	71,675	10.3
>=50	6,098	0.9
Race ethnic		
Black non-hispanic	131,303	18.9
Hispanic	74,130	10.6
White non-hispanic	448,310	64.4
Others	42,829	6.2
Military status		
Enlisted	597,531	85.8
Officer	99,041	14.2
Military occupational group		
Combat	204,032	29.3
Medical	42,959	6.2
Other	449,581	64.5
Number of OIF/OEF deployments		
One	520,094	74.7
Two or more	176,478	25.3
Total	696,572	100.0

Within 360 days of deploying, there were 25,968 hospitalizations (crude rate: 2.95 per 100 p-yrs) and 5,405,404 ambulatory visits (crude rate: 614.6 per 100 p-yrs).

The rate of hospitalizations (all causes) sharply declined beginning approximately 120 days prior to deployment (**Figure 1**). During the 120 days prior to deploying, there were sharp declines in hospitalizations for pregnancy-related conditions, musculoskeletal and connective tissue disorders, injuries and poisonings, respiratory disorders, and digestive disorders (**Figures 2,3**). In general, for all other conditions, hospitalization rates were relatively stable or slightly increased from 360 to 90 days before deploying and then slightly declined (**Figures 2,3**).

The rate of ambulatory visits (all causes) sharply increased beginning approximately 60 days prior to deployment (**Figure 1**). The increase in ambulatory visits within 60 days of deploying was attributable almost entirely to a sharp increase in visits for “other” than current illnesses or injuries – notably, immunizations and pre-deployment health assessments (indicated by “V” codes of the ICD-9-CM) (**Figure 4**). Rates of ambulatory visits for injuries and poisonings, musculoskeletal and connective tissue disorders, and respiratory disorders sharply declined within 90 days of deploying (**Figure 3**). Of note, ambulatory visits for nervous system and sense organ disorders — notably, disorders of refraction and accommodation — increased throughout the year prior to deployment (**Figure 3**).

Editorial comment:

Young men and women in active military service who deploy overseas during periods of war are inherently “healthier” than their similarly aged counterparts, both within and outside of the military. Thus, differences in baseline health statuses must be accounted for when assessing the potential health effects of deployment service. The term “healthy warrior effect” has been used to describe the inherent bias that influences direct comparisons of the medical experiences of war veterans and others.¹

Accounting for the “healthy warrior effect” during deployment health surveillance is difficult. For example, depending on the thoroughness and rigor of pre-deployment medical preparations, different groups of deployers to the same operation may have different health statuses when they deploy. For this report, we attempted to assess, in general terms, the natures and relative magnitudes of various determinants of the “healthy warrior effect.” Several findings are informative and potentially useful for deployment health surveillance purposes.

The most striking finding of this analysis was that hospitalizations sharply declined within 120 days of deploying, while ambulatory visits sharply increased within 60 days of deploying. In general, active service members are only hospitalized for conditions that cannot be evaluated and

Figure 1. Hospitalization and ambulatory visit rates among deployers, by time before deploying, active components, U.S. Armed Forces, January 2002-December 2006

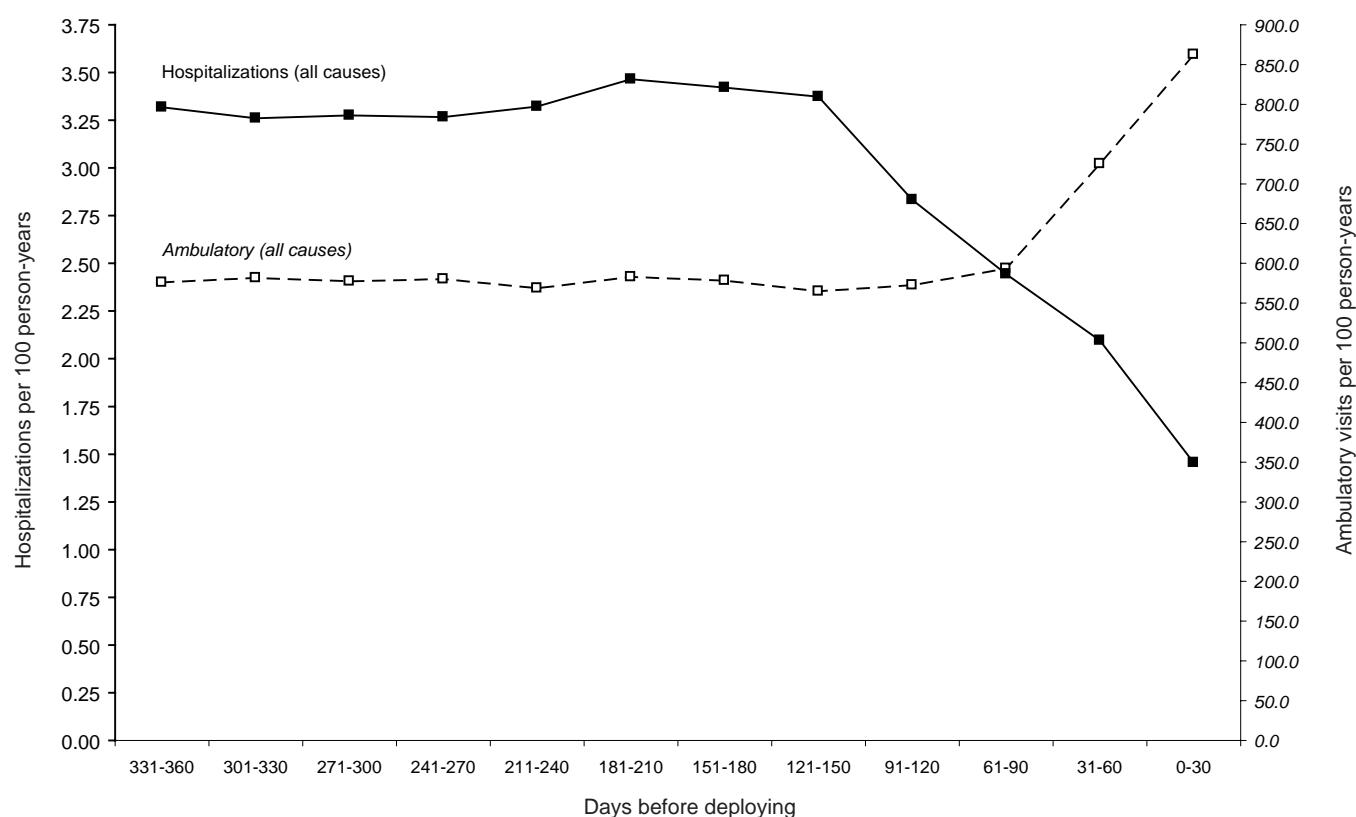


Figure 2. Hospitalization rates among deployers, by time before deploying, active components, U.S. Armed Forces, January 2002-December 2006

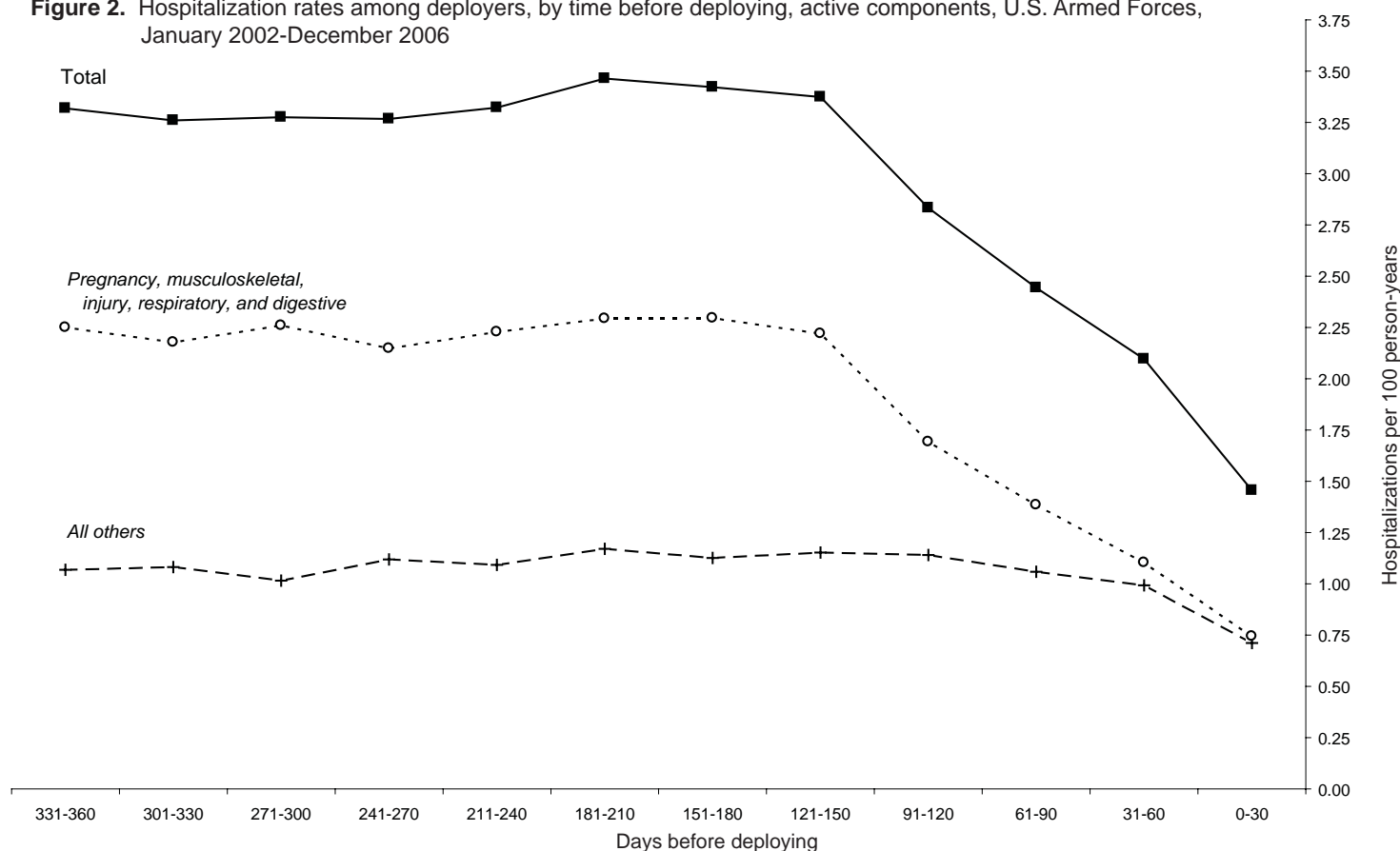
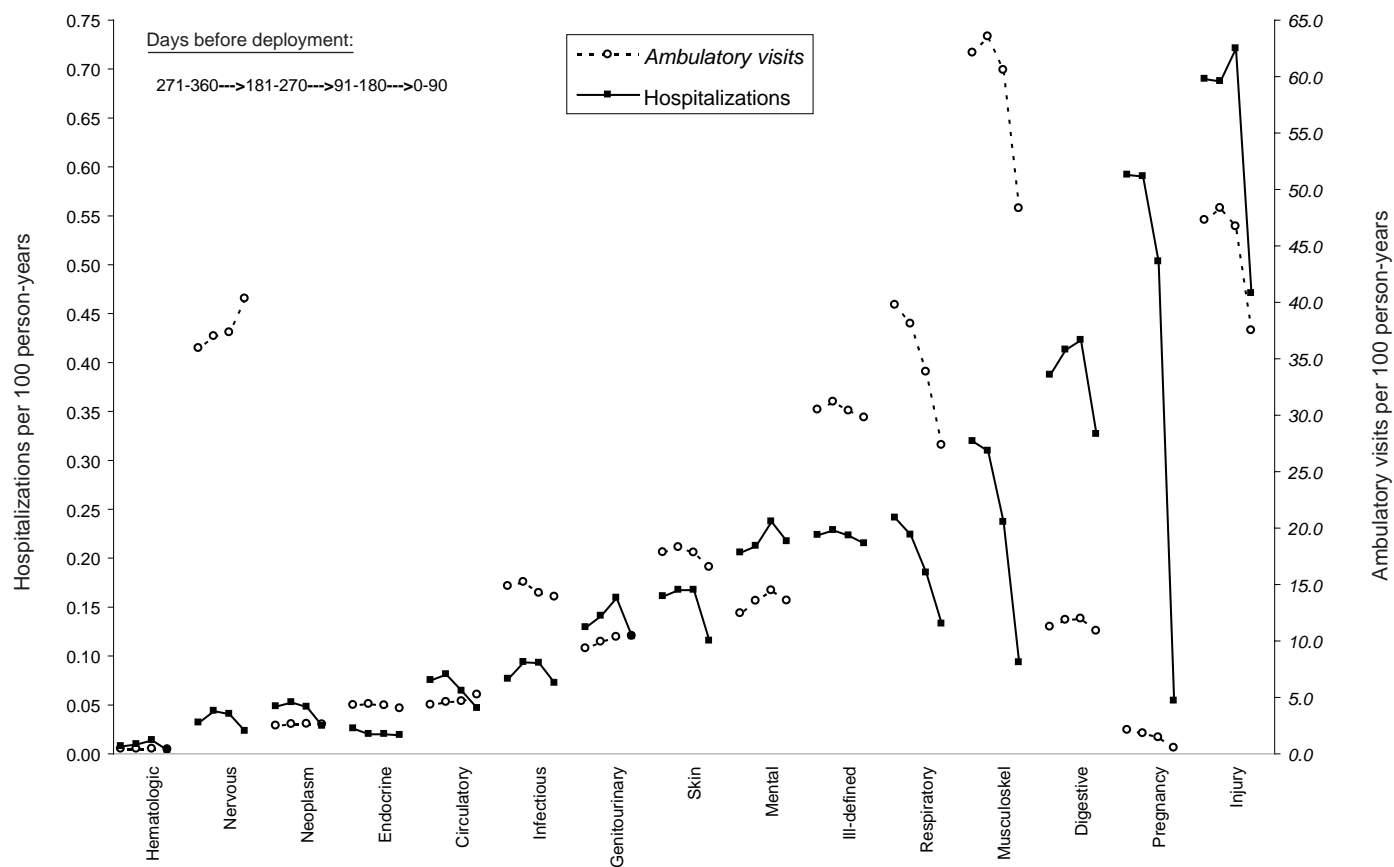


Figure 3. Hospitalization and ambulatory visit rates, during 90-day intervals prior to deploying, by major diagnostic categories, among active component deployers, U.S. Armed Forces, 2002-2006



treated in ambulatory settings. Such conditions — such as those that require major surgical repairs and/or intensive medical care — often have long periods of convalescence after hospital discharge. In previous studies, the number, nature, and timing of hospitalizations before deploying have been strong predictors of risks of hospitalization during and after deployments.^{2,3} Thus, in general, the fewer hospitalizations in a military force just prior to deploying, the better the health of the force during deployment. In this analysis, the sharp decline in hospitalization rates within 120 days of deploying reflects effective deployment health practices.

Of course, there is always room for improvement — for example, while hospitalization rates for injuries and poisonings sharply declined prior to deployment, there were still more hospitalizations by far for this category ($n=1,060$) than any other within 90 days of deployment. Service members who deploy to combat theaters soon after hospitalizations for injuries are likely at increased risk of exacerbations or recurrences during deployment.³ Pre-deployment health assessments should focus on service members with recent hospitalizations, particularly for conditions that are not completely rehabilitated and may be exacerbated by anticipated stresses of deployment.

The sharp increase in ambulatory visits within two months of deploying also reflects effective deployment health practices — because the increase was attributable to deployment health

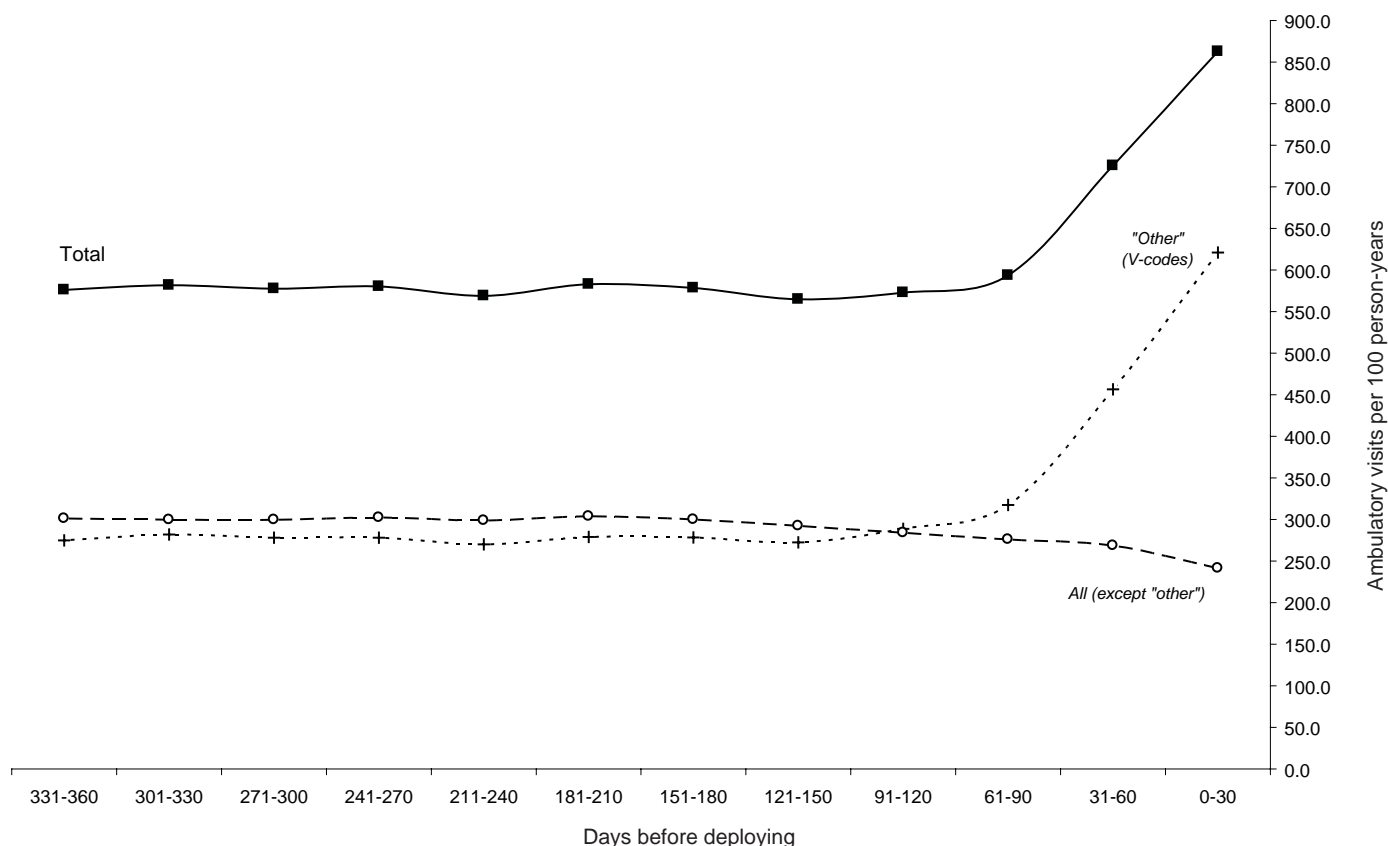
related activities (e.g., immunizations, updated prescriptions for eyeglasses, pre-deployment health assessments). Of note, in the 60 days prior to deploying, deployers had more than twice as many medical encounters for deployment health-related activities as illnesses or injuries.

Finally, the analysis documents that female service members are rarely deployed within approximately 120 days of a pregnancy-related hospitalization or ambulatory visit. The finding reflects current policies that preclude deployment during pregnancy and defer deployment for at least 4 months (Marine Corps: 12 months) after delivery.^{4,5}

References:

1. Haley RW. Point: bias from the "healthy-warrior effect" and unequal follow-up in three government studies of health effects of the Gulf War. *Am J Epidemiol*. 1998 Aug 15;148(4):315-23.
2. Brundage JF, Kohlhasse KF, Gambel JM. Hospitalization experiences of U.S. servicemembers before, during, and after participation in peacekeeping operations in Bosnia-Herzegovina. *Am J Ind Med*. 2002 Apr;41(4):279-84.
3. Army Medical Surveillance Activity. Relationships between the timing and causes of hospitalizations before and after deploying to Iraq or Afghanistan, active Components, U.S. Armed Forces, 2002-2005. *Medical Surveillance Monthly Report (MSMR)*. 2007 Feb/Mar;13(2):3-7.
4. Association of Military Surgeons United States. Breastfeeding coalition of the Uniformed Services (BCUS/BECAUSE). Update: there is a roadblock within Navy, Army, and Air Force. AMSUS newsletter. Spring 2007:6-7. Accessed on-line 3 June 2007: www.amsus.org/membership/newsletters/spring2007.pdf
5. Marine Corps Order 5000.12E, dated 8 December 2004, subject: Marine Corps policy concerning pregnancy and parenthood. Headquarters United States Marine Corps, Washington, DC.

Figure 4. Ambulatory visit rates among deployers, by time before deploying, active components, U.S. Armed Forces, January 2002-December 2006



Update: Deployment Health Assessments, U.S. Armed Forces, January 2003-April 2007

The health protection strategy of the U.S. Armed Forces is designed to deploy healthy, fit, and medically ready forces, to minimize illnesses and injuries during deployments, and to evaluate and treat physical and psychological problems (and deployment-related health concerns) following deployment.

In 1998, the Department of Defense initiated health assessments of all deployers prior to and after serving in major operations outside of the United States.¹ In March 2005, the Post-Deployment Health Reassessment (PDHRA) program was begun to identify and respond to health concerns that persisted for or emerged within three to six months after redeployment.²

This report summarizes responses to selected questions on deployment health assessments completed since 2003. In addition, it documents the natures and frequencies of changes in responses from before to after deployments.

Methods:

Completed deployment health assessment forms are transmitted to the Armed Forces Health Surveillance Center (AFHSC) where they are incorporated into the Defense Medical Surveillance System (DMSS).³ In the DMSS, data recorded on health assessment forms are integrated with data that document demographic and military characteristics and medical encounters (e.g. hospitalizations, ambulatory visits) at fixed military and other (contracted care) medical facilities of the Military Health System. For this analysis, DMSS was searched to identify all pre (DD2795) and post (DD2796) deployment health assessment forms completed since 1 January 2003 and all post-deployment health reassessment (DD2900) forms completed since 1 August 2005.

Results:

Since January 2003, 1,619,436 pre-deployment health assessment forms, 1,640,266 post-deployment health assessment forms and 291,302 post-deployment health reassessment forms were completed at field sites, transmitted to the AFHSC, and integrated into the DMSS (Figure 1). Throughout the period, there were intervals of approximately 2-4 months between peaks of pre-deployment and post-deployment health assessments (that were completed by different cohorts of deployers) (Figure 1). Post-deployment health reassessments rapidly increased between February and May 2006 (Figure 1). Since then, numbers of reassessment forms per month have been relatively stable (reassessment forms per month, May 2006-April 2007: mean: 21,229; range: 13,888-28,199) (Figure 1, Table 1).

Between May 2006 and April 2007, nearly three-fourths (73.8%) of deployers rated their "health in general" as "excellent" or "very good" during pre-deployment health assessments (Figure 2). During the same period, only 59.6% and 51.8% of redeployers rated their general health as "excellent" or "very good" during post-deployment assessments and post-deployment reassessments, respectively (Figure 2).

From pre-deployment to post-deployment to post-deployment reassessments, there were sharp increases in the proportions of deployers who rated their health as "fair" or "poor" (Figure 2). For example, prior to deployment, approximately one of 40 (2.6%) deployers rated their health as "fair" or "poor"; however, 3-6 months after redeploying (during post-deployment reassessments), approximately one of seven (14.0%) respondents rated their health as "fair" or "poor" (Figure 2).

Figure 1. Total deployment health assessment and reassessment forms, by month, U.S. Armed Forces, January 2003-April 2007

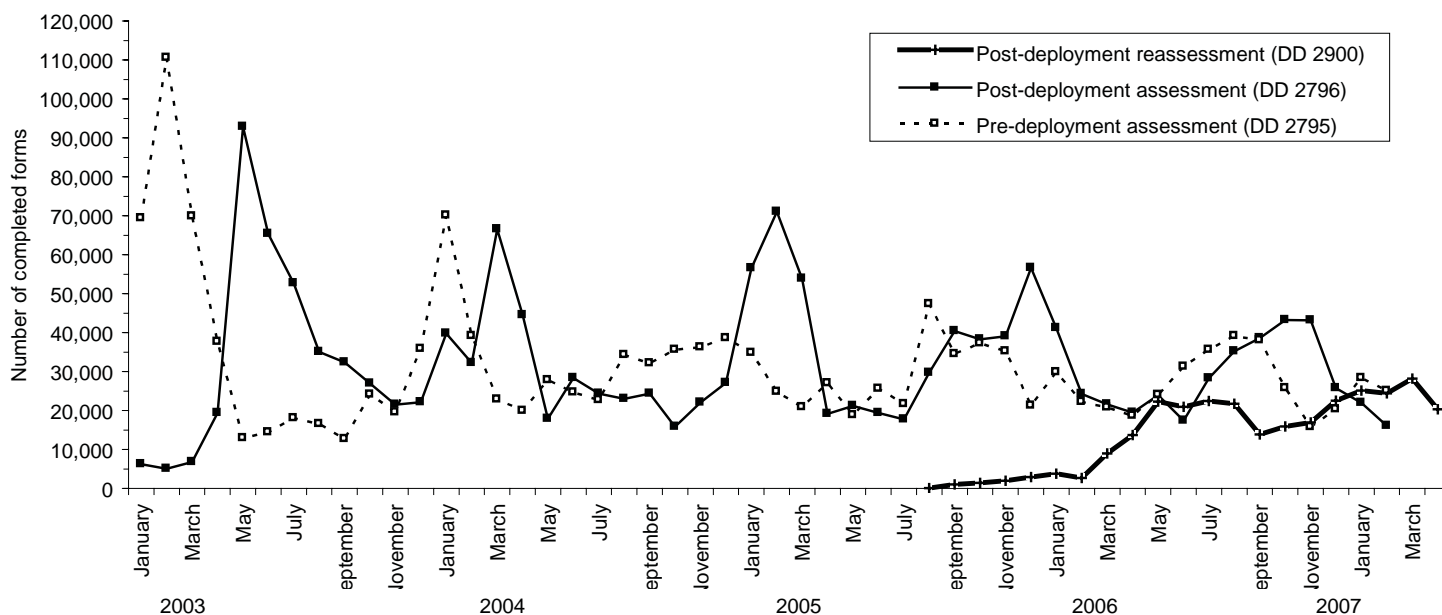


Table 1. Deployment-related health assessment forms, by month, U.S. Armed Forces, May 2006 - April 2007

	Pre-deployment assessment DD2795		Post-deployment assessment DD2796		Post-deployment reassessment DD2900	
	n	%	n	%	n	%
Total	333,708	100	319,005	100	254,750	100
2006						
May	24,026	7.2	23,948	7.5	22,268	8.7
June	31,237	9.4	17,416	5.5	20,947	8.2
July	35,604	10.7	28,252	8.9	22,448	8.8
August	39,153	11.7	35,234	11.0	21,759	8.5
September	38,035	11.4	38,621	12.1	13,888	5.5
October	25,785	7.7	43,248	13.6	15,925	6.3
November	15,785	4.7	43,144	13.5	16,947	6.7
December	20,306	6.1	25,752	8.1	22,534	8.8
2007						
January	28,342	8.5	21,948	6.9	25,093	9.9
February	25,022	7.5	16,046	5.0	24,433	9.6
March	22,201	6.7	13,184	4.1	28,199	11.1
April	28,212	8.5	12,212	3.8	20,309	8.0

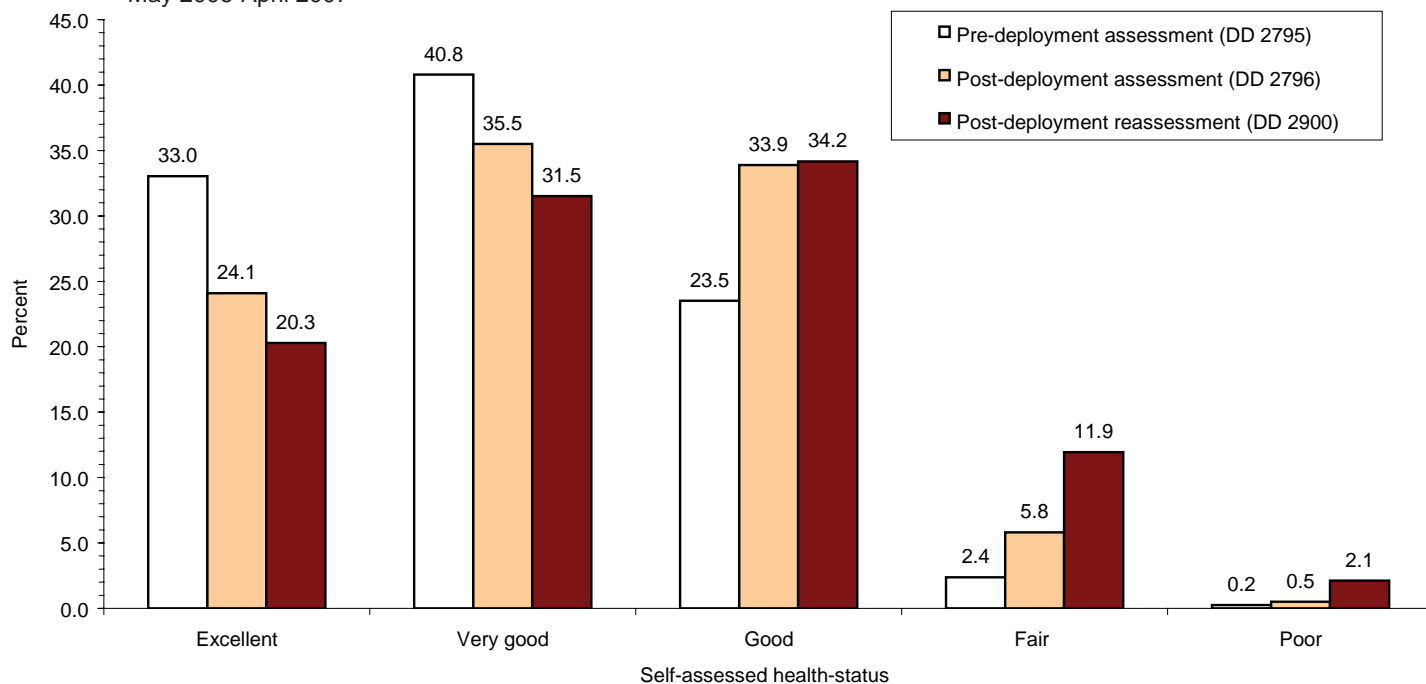
From January 2003 through April 2007, the proportion of deployers who assessed their general health as “fair” or “poor” before deploying remained consistently low (% “fair” or “poor” “health in general,” pre-deployment health assessments, Jan 2003-Apr 2007, by month: mean: 2.4% [range: 1.5-3.3%]) (Figure 3). During the same period, the proportion of redeployers who assessed their general health as “fair” or “poor” around times of redeployment was consistently and clearly higher than before deploying (% “fair” or “poor” “health in general,” post-deployment health assessments, Jan 2003-Apr 2007, by month: mean: 7.0%

[range: 3.0-10.2%]) (Figure 3). Finally, from January 2006 through April 2007, the proportion of redeployers who assessed their general health as “fair” or “poor” 3-6 months after redeploying was sharply higher than at redeployment (% “fair” or “poor” “health in general,” post-deployment health reassessments, Jan 2006-Apr 2007, by month: mean: 14.0% [range: 11.6-16.9%]) (Figure 3).

More than half of service members who rated their overall health before deployment chose a different descriptor after deploying, but usually by only a single category (on a five category scale). Figure 4 shows the proportion of service members whose self-rated health changed by more than one category from pre-deployment to reassessment. The proportion of service members whose health improved by more than one category changed little between May 2006 and April 2007 (mean: 1.5%, range: 1.1-1.7%). However, the proportion of service members whose self-assessed health declined by more than one category increased during the 12-month period (mean: 17.1, range 15.6-19.4%). (Figure 4).

In general, on post-deployment assessments and re-assessments, members of Reserve components and members of the Army were much more likely than their respective counterparts to report mental health-related symptoms and health and exposure-related concerns – and in turn, to have indications for medical and mental health follow-ups (“referrals”) (Table 2).

Of note in this regard, among Reserve versus active component members, relative excesses of health-related concerns and provider-indicated referrals were much greater 3-6 months after redeployment (DD2900) than either before deploying (DD2795) or at redeployment (DD2796) (Table 2, Figures 5,6). For example, among both active and Reserve component members of all Services, mental or behavioral health referrals were

Figure 2. Percent distributions of self-assessed health status as reported on deployment health assessment forms, U.S. Armed Forces, May 2006-April 2007

more common after deployment than before (**Figure 5**). However, from the time of redeployment to 3-6 months later, mental health referrals sharply increased among active and Reserve component members of the Army and Marine Corps and among Reserve component members of the Navy (but not among active component members of the Navy or members of the Air Force) (**Table 2, Figure 5**). Of note in this regard, the largest absolute increases in mental health referrals from redeployment to 3-6 months later were for Reserve component members of the Army (post-deployment: 4.3%; reassessment: 13.7%) and Navy (post-deployment: 1.9%; reassessment: 7.6%) (**Table 2, Figure 5**).

Finally, over the past three years, Reserve versus active component members have been approximately twice as likely to report "exposure concerns" on post-deployment health assessments (DD2796) (% "exposure concerns," post-deployment assessments, by month, May 2004-Apr 2007: Reserve: mean: 23.3%, range: 18.1-30.2%; active: mean: 11.0%; range: 6.7-14.6%). (**Figures 6,7**). Of interest regarding exposure concerns, sharply higher proportions of both Reserve and active component members endorsed exposure concerns 3-6 months after (DD2900) compared to around times (DD2796) of redeployment (% "exposure concerns," post-deployment reassessments, by month, Jan 2006-Apr 2007: Reserve: mean: 38.7%, range: 33.3-48.0%; active: mean: 19.0%; range: 16.5-23.6%) (**Figure 7**).

Editorial Comment:

In general, since 2003, proportions of U.S. deployers to Iraq and Afghanistan who report medical or mental health-related symptoms (or have indications for medical or mental health referrals) on deployment-related health assessments increased

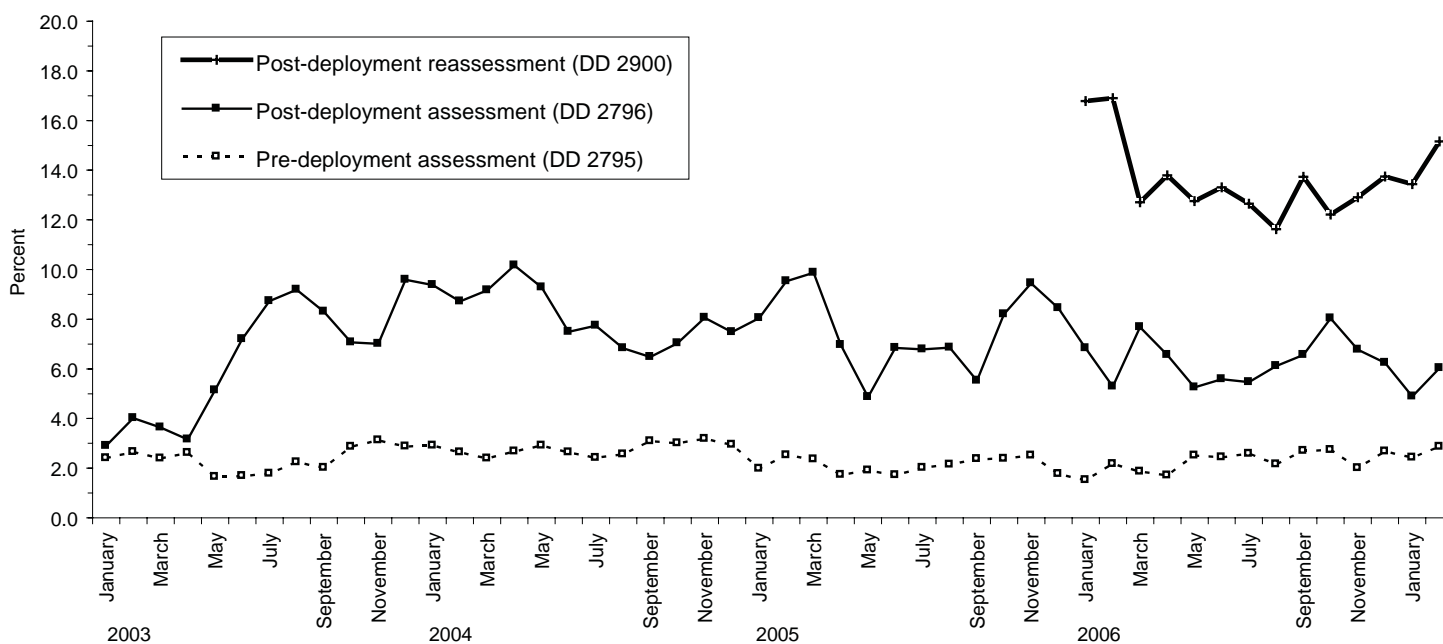
from pre-deployment to post-deployment to 3-6 months post-deployment, are higher among members of the Army than the other Services, and are higher among Reserve than the active component members.

Regardless of the Service or component, deployers often rate their general health worse when they redeploy compared to before deploying. This is not surprising because deployments are inherently physically and psychologically demanding. Clearly, there are many more – and more significant – threats to the physical and mental health of service members when they are conducting or supporting combat operations away from their families in hostile environments compared to when serving at their permanent duty stations (active component) or when living in their civilian communities (Reserve component).

However, many redeployed service members rate their general health worse 3-6 months after returning from deployment compared to earlier. This finding may be less intuitively understandable. Symptoms of post-traumatic stress disorder (PTSD) may emerge or worsen within several months after a life threatening experience (such as military service in a war zone). PTSD among U.S. veterans of combat duty in Iraq has been associated with higher rates of physical health problems after redeployment.⁴ The post-deployment health reassessment at 3-6 months post-deployment is designed to detect service members with symptoms not only of PTSD but also persistent or emerging deployment-related medical and mental health problems.

Among British veterans of the Iraq war, Reservists reported more "ill health" than their active counterparts. Roles, traumatic experiences, and unit cohesion while deployed were associated with medical outcomes after redeployment; however, PTSD symptoms were more associated with problems at home (e.g. reintegration into family, work, and other aspects of civilian life)

Figure 3. Proportion of deployment health assessment forms with self-assessed health status as "fair" or "poor", U.S. Armed Forces, January 2003-April 2007



than with events in Iraq.⁵ The finding may explain, at least in part, the large differences in prevalences of mental health symptoms, medical complaints, and provider-indicated mental health referrals among Reserve compared to active members — particularly in the Army and Navy — 3-6 months after returning from deployment compared to earlier.

Post-deployment health assessments may be more reliable several months after redeployment compared to earlier. Commanders, supervisors, family members, peers, and providers of health care to redeployed service members should be alert to emerging or worsening symptoms of physical and psychological problems for several months, at least, after redeployment.

Figure 4. Proportion of service members whose self-assessed health status improved (“better”) or declined (“worse”) (by 2 or more categories on 5-category scale) from pre-deployment to reassessment, by month, U.S. Armed Forces, May 2006-April 2007

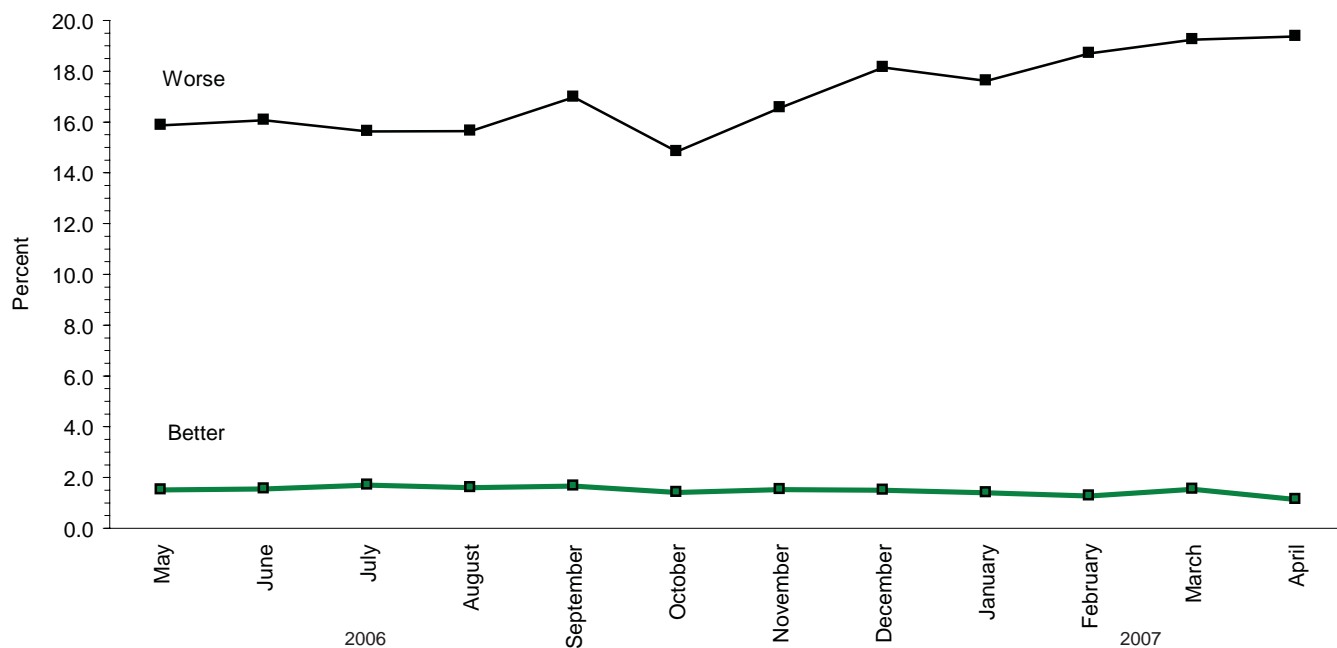


Figure 5. Percent of deployers with mental or behavioral health referrals, by Service and component, by timing of health assessment, U.S. Armed Forces, May 2006-April 2007

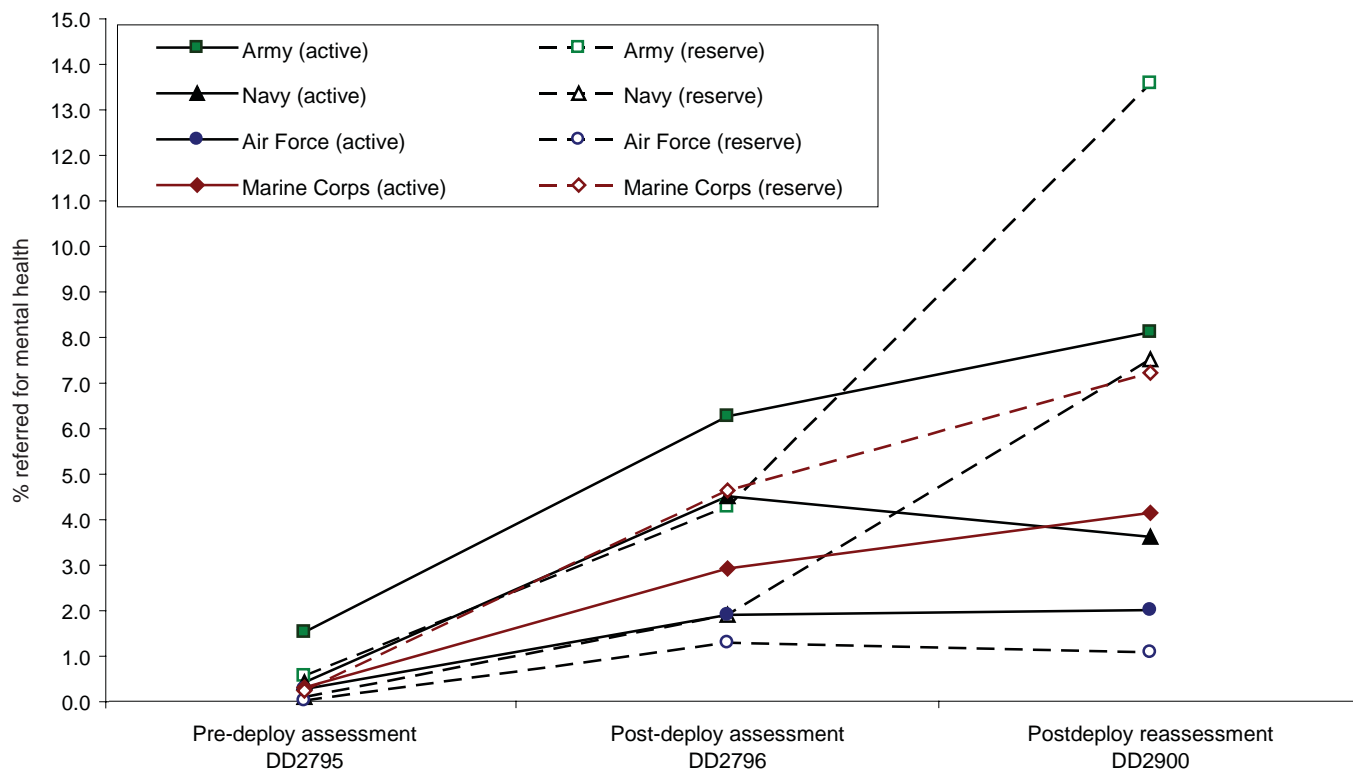


Table 2. Responses to selected questions from deployment health assessment forms, U.S. Armed Forces, May 2006 - April 2007

Active component	Army			Navy			Air Force			Marine Corps			All service members		
	Pre-deploy DD2795 n=159,885	Post-deploy DD2796 n=150,602	Reassessment DD2900 n=98,787	Pre-deploy DD2795 n=5,786	Post-deploy DD2796 n=9,671	Reassessment DD2900 n=5,024	Pre-deploy DD2795 n=61,661	Post-deploy DD2796 n=52,331	Reassessment DD2900 n=60,065	Pre-deploy DD2795 n=9,424	Post-deploy DD2796 n=4,044	Reassessment DD2900 n=10,160	Pre-deploy DD2795 n=236,756	Post-deploy DD2796 n=236,648	Reassessment DD2900 n=174,036
General health "fair" or "poor"	4.2	7.4	17.1	1.4	3.7	6.8	0.7	1.8	5.5	1.6	3.5	9.8	3.1	5.6	12.4
Health concerns, not wound or injury	13.5	21.9	39.9	5.5	8.3	17.4	4.1	10.2	17.1	3.5	8.6	25.5	10.4	17.4	30.5
Health worse now than before deployed	.	19.8	27.8	.	7.8	12.2	.	6.6	11.2	.	11.4	20.0	.	15.5	21.1
Exposure concerns	.	18.2	24.4	.	6.1	10.8	.	5.7	12.6	.	7.3	14.7	.	13.9	19.3
PTSD symptoms (2 or more)	.	14.2	16.5	.	5.2	7.4	.	2.3	3.1	.	8.1	13.8	.	10.6	11.5
Depression symptoms	.	29.0	10.2	.	23.3	7.2	.	8.4	3.0	.	26.8	11.3	.	24.0	7.7
Referral indicated by provider (any)	7.7	27.8	26.0	5.1	15.9	15.5	1.5	12.3	8.5	3.0	15.0	17.8	5.9	22.6	19.2
Mental health referral indicated*	1.5	6.3	8.2	0.4	4.5	3.6	0.3	1.9	2.0	0.3	2.9	4.2	1.1	4.9	5.7
Medical visit following referral†	94.5	98.8	97.2	77.8	75.7	86.1	75.2	89.8	93.4	57.0	60.8	68.5	92.1	94.5	94.8
Reserve component	Pre-deploy DD2795 n=74,684	Post-deploy DD2796 n=62,757	Reassessment DD2900 n=60,895	Pre-deploy DD2795 n=44,73	Post-deploy DD2796 n=3,029	Reassessment DD2900 n=2,312	Pre-deploy DD2795 n=16,931	Post-deploy DD2796 n=14,086	Reassessment DD2900 n=13,233	Pre-deploy DD2795 n=864	Post-deploy DD2796 n=2,485	Reassessment DD2900 n=4,274	Pre-deploy DD2795 n=96,952	Post-deploy DD2796 n=82,357	Reassessment DD2900 n=80,714
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
General health "fair" or "poor"	1.7	9.9	20.0	0.4	4.9	12.3	0.3	2.0	4.1	0.9	5.6	10.1	1.4	8.3	16.6
Health concerns, not wound or injury	12.9	33.8	59.3	2.5	21.3	43.0	1.6	20.3	15.5	3.0	26.4	38.5	10.3	30.8	50.5
Health worse now than before deployed	.	27.2	38.7	.	17.7	26.9	.	9.1	9.3	.	24.3	24.9	.	23.7	32.8
Exposure concerns	.	30.1	42.6	.	22.3	31.6	.	8.2	16.8	.	23.5	24.2	.	25.9	37.1
PTSD symptoms (2 or more)	.	11.6	22.8	.	5.4	16.0	.	2.1	3.0	.	15.5	19.7	.	9.9	19.2
Depression symptoms	.	25.4	12.4	.	18.0	8.2	.	8.0	2.1	.	35.7	9.0	.	22.5	10.4
Referral indicated by provider (any)	11.6	32.1	56.6	2.9	20.3	43.6	0.2	11.9	30.5	1.5	22.9	45.9	9.1	27.9	51.4
Mental health referral indicated*	0.6	4.3	13.7	0.1	1.9	7.6	0.0	1.3	1.1	0.2	4.7	7.3	0.4	3.7	11.1
Medical visit following referral†	97.2	97.1	19.9	91.6	87.0	19.2	34.4	49.0	16.3	38.5	50.3	16.3	96.8	92.2	19.4

*Includes behavioral health and combat stress referrals

†Record of inpatient or outpatient visit within 6 months after referral

References:

1. Undersecretary of Defense for Personnel and Readiness. Department of Defense Instruction (DODI) Number 6490.3. Subject: Deployment health, dated 11 August 2006. Accessed on 19 March 2007 at: <http://www.dtic.mil/whs/directives/corres/pdf/649003p.pdf>.
2. Assistant Secretary of Defense (Health Affairs). Memorandum for the Assistant Secretaries of the Army (M&RA), Navy (M&RA), and Air Force (M&RA), subject: Post-deployment health reassessment (HA policy: 05-011), dated 10 March 2005.

Washington, DC. Accessed on 18 October 2006 at: < <http://www.ha.osd.mil/policies/2005/05-011.pdf> >.

3. Rubertone MV, Brundage JG. The Defense Medical Surveillance System and the Department of Defense Serum Repository: Glimpses of the Future of Public Health Surveillance. *Am J Public Health* 2002 Dec;92, (12):1900-04.
4. Hoge CW, Terhakopian A, Castro CA, Messer SC, Engel CC. Association of post-traumatic stress disorder with somatic symptoms, health care visits, and absenteeism among Iraq war veterans. *Am J Psychiatry*. 2007 Jan;164(1):150-3.
5. Browne T, Hull L, Horn O, et al. Explanations for the increase in mental health problems in UK reserve forces who have served in Iraq. *Br J Psychiatry*. 2007 Jun;190:484-489.

Figure 6. Ratio of % endorsement of selected questions, Reserve versus active component deployers, on pre-deployment health assessments (DD2795) and post-deployment health reassessments (DD2900), U.S. Armed Forces, May 2006-April 2007

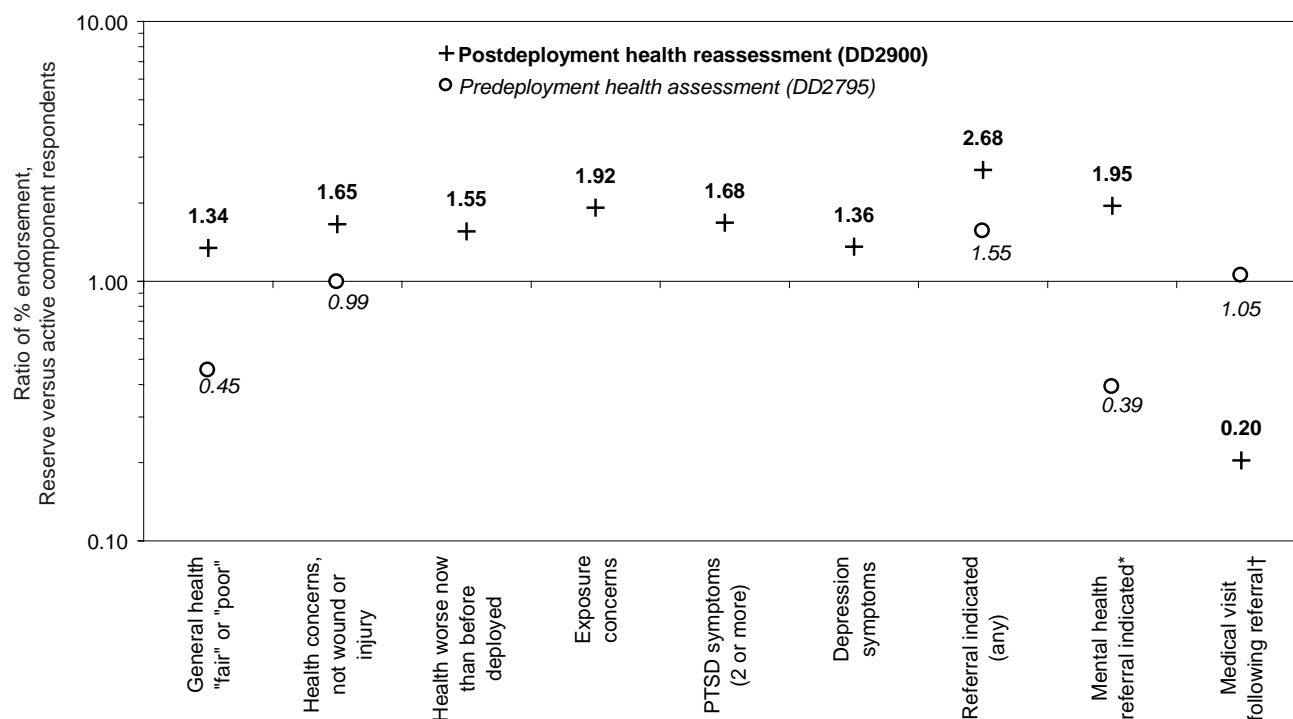
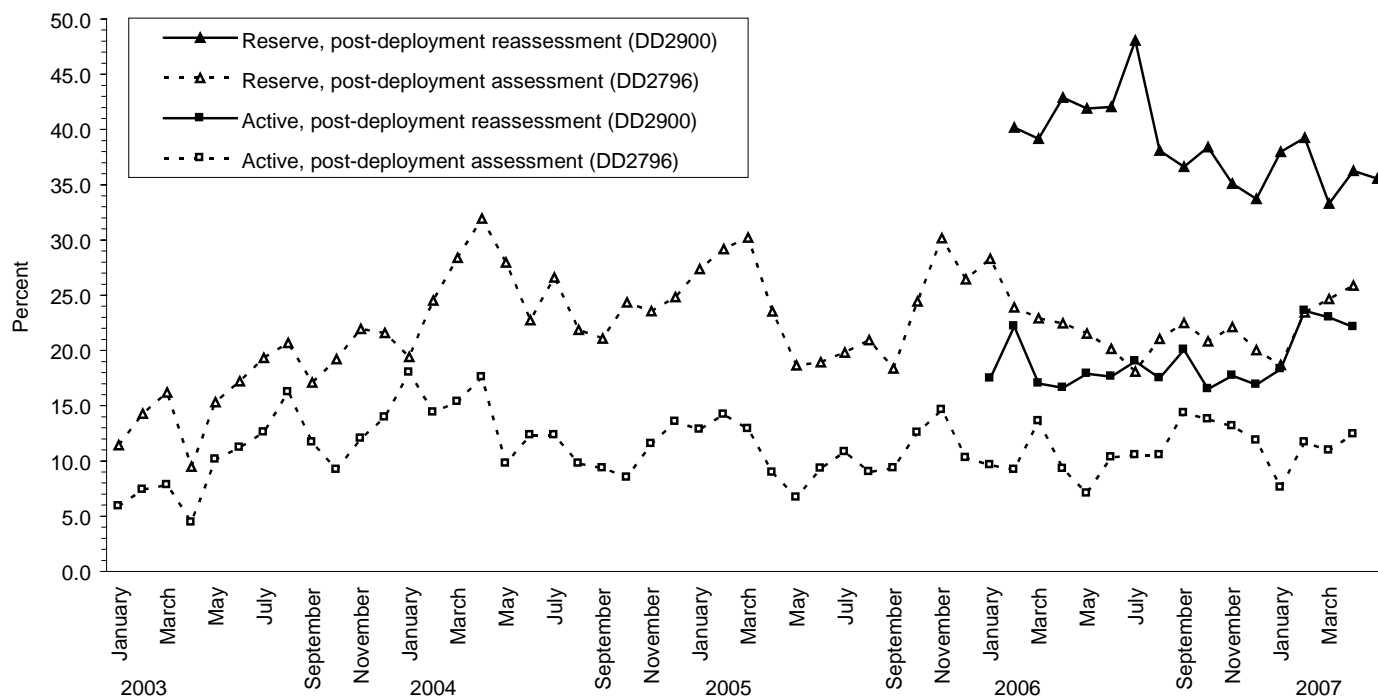
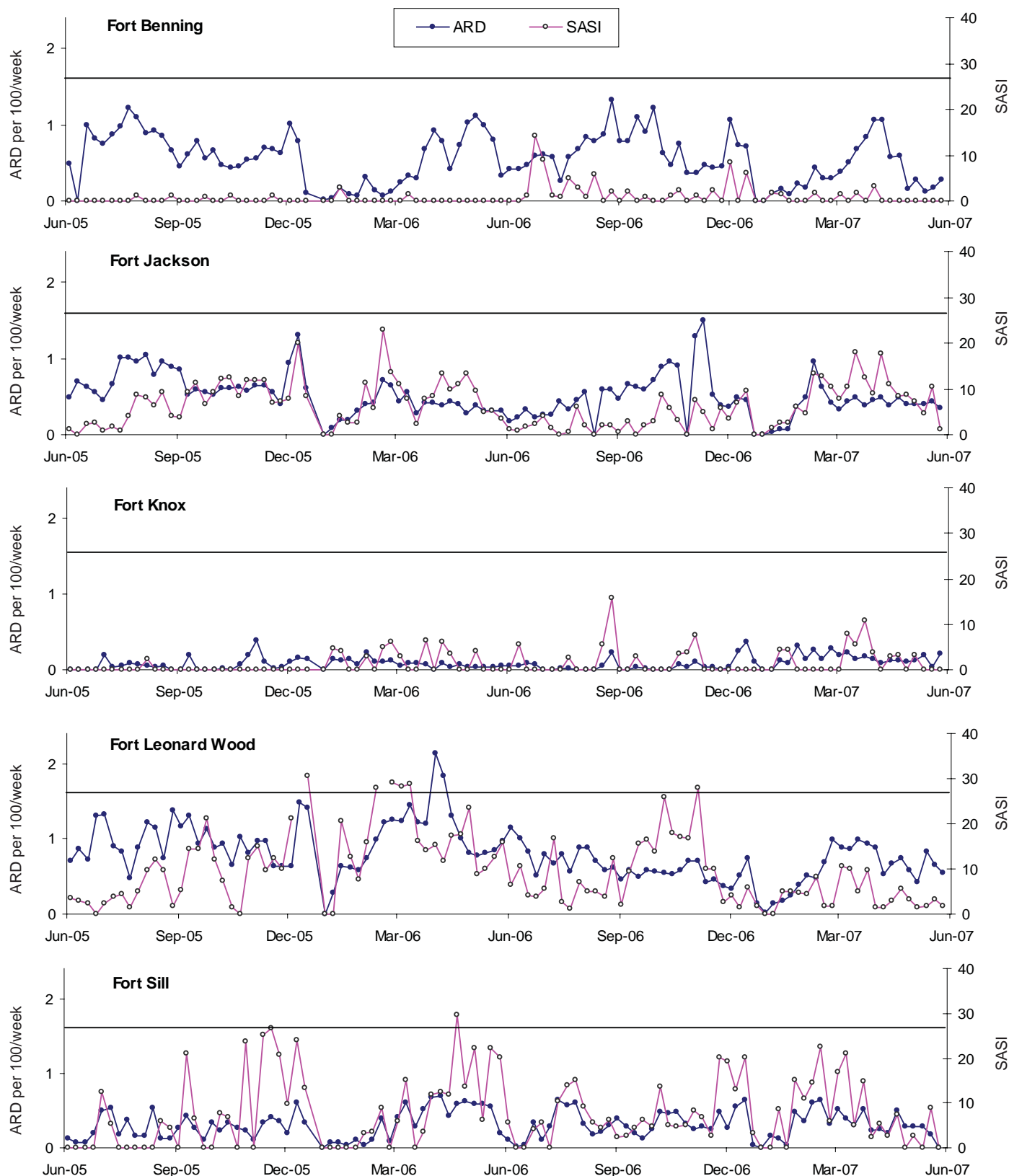


Figure 7. Proportion of service members who endorse exposure concerns on post-deployment health assessments, U.S. Armed Forces, 2003-2007



Acute respiratory disease and streptococcal pharyngitis rates, basic training centers, U.S. Army, June 2005 - June 2007



ARD rate = cases per 100 trainees per week

SASI (Strep-ARD Surveillance Index) = (ARD rate) × (% positive Group A beta hemolytic strep cultures)

ARD rate ≥ 1.5 or SASI ≥ 25.0 for 2 consecutive weeks are indicators of epidemics

Sentinel reportable events for service members and beneficiaries at U.S. Air Force medical facilities, cumulative numbers* for calendar years through May 2006 and May 2007



Reporting location	Number of reports all events [†]		Food-borne								Vaccine preventable					
			Campylobacter		Giardia		Salmonella		Shigella		Hepatitis A		Hepatitis B		Varicella	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
ACC Combat	557	511	1	1	.	1	1	.	.	.	.	.	1	3	2	1
AETC Education	247	210	.	.	1	.	2	3	.	.	.	.	1	1	3	3
Lackland, TX	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USAF Academy, CO	79	16	.	.	.	.	.	2	.	.	.	.	.	.	.	.
AFDW	31	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
AFMC Materiel	258	155	1	.	.	.	2	3	.	.	.	.	2	.	2	1
AFSOC Special Ops	48	49	.	.	.	.	2	.	.	1	.	.	.	.	.	.
AFSPC Space	165	107	.	1	.	1	2	5	.	.	.	.	1	1	.	1
AMC Mobility	410	243	.	.	2	.	5	1	7	1	.	.	4	1	1	2
PACAF	273	170	.	.	1	.	5	1	.	.	.	.	2	2	.	8
PACAF Korea	108	39	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USAFE	185	116	.	2	1	.	.	.	.	.	.	.	.	.	1	.
Total	2,361	1,620	2	4	5	2	19	15	7	2	0	0	11	8	9	16

*Reports received by June 7, 2006 and 2007

†Seventy medical events/conditions specified by Tri-Service Reportable Events, May 2004.

Note: Completeness and timeliness of reporting vary by facility.

Reporting location	Arthropod-borne				Sexually transmitted								Environmental			
	Lyme disease		Malaria		Chlamydia		Gonorrhea		Syphilis [‡]		Urethritis [§]		Cold		Heat	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
ACC Combat	.	2	.	.	500	290	32	21	3	.	.	.	3	.	.	.
AETC Education	.	.	1	.	179	167	27	19	1	.	.	.	.	.	.	.
Lackland, TX	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USAF Academy, CO	.	.	1	.	36	14	.	.	.	.	.	.	2	.	.	.
AFDW	.	.	.	.	23	4	2	.	.	.	.	.	.	.	.	.
AFMC Materiel	.	.	1	.	166	126	29	15	1	.	.	.	.	.	.	.
AFSOC Special Ops	.	.	.	.	34	44	10	4	.	.	.	.	.	.	.	.
AFSPC Space	1	.	.	.	127	84	5	10	.	.	.	.	1	.	.	.
AMC Mobility	4	3	1	.	304	206	15	12	1	.	.	.	.	.	.	2
PACAF	.	.	1	.	234	135	16	5	.	.	.	.	2	.	.	.
PACAF Korea	.	.	.	.	88	31	12	.	.	.	.	.	.	.	.	.
USAFE	.	1	1	.	118	77	15	9	1	.	.	.	.	.	.	.
Total	5	6	6	0	1,809	1,178	163	95	7	0	0	0	8	0	0	2

‡Primary and secondary.

§Urethritis, non-gonococcal (NGU).

Sentinel reportable events for service members and beneficiaries at U.S. Army medical facilities, cumulative numbers* for calendar years through May 2006 and May 2007



Army

Reporting location	Number of reports all events [†]		Food-borne								Vaccine preventable					
			Campylobacter		Giardia		Salmonella		Shigella		Hepatitis A		Hepatitis B		Varicella	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
NORTH ATLANTIC																
Washington, DC Area	129	114	4	.	.	3	2	1	.	.	.	.	2	.	.	1
Aberdeen, MD	10	19	.	.	.	1	.	.	.	.	.	.	.	.	.	.
FT Belvoir, VA	176	106	5	6	.	.	3	1	1	1	.	.	.	.	.	.
FT Bragg, NC	664	518	5	1	.	.	6	6	.	1	.	.	.	.	.	.
FT Drum, NY	95	108	.	.	.	.	.	.	.	.	.	.	2	.	.	.
FT Eustis, VA	92	83	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FT Knox, KY	97	124	.	.	.	.	.	1	.	.	.	.	1	.	.	.
FT Lee, VA	183	191	.	.	.	.	.	.	.	.	.	.	2	.	.	.
FT Meade, MD	48	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.
West Point, NY	18	14	.	.	.	.	1	.	.	.	.	.	3	.	.	.
GREAT PLAINS																
FT Sam Houston, TX	276	313	.	.	2	1	1	2	1	.	.	.	2	.	.	6
FT Bliss, TX	151	159	.	.	.	.	.	.	.	.	.	1	2	.	.	.
FT Carson, CO	360	328	.	.	.	2	3	.	.	.	.	.	.	.	.	.
FT Hood, TX	771	891	.	3	1	2	3	3	2	6	.	.	.	.	1	1
FT Huachuca, AZ	22	49	.	.	.	.	.	5	.	.	.	.	.	.	.	.
FT Leavenworth, KS	15	21	.	1	.	.	.	.	.	.	.	.	.	.	.	.
FT Leonard Wood, MO	129	183	.	.	1	.	1	.	.	.	.	.	.	.	6	5
FT Polk, LA	86	76	2	.	.	3	.	2	.	.	.	.	.	.	.	1
FT Riley, KS	49	130	1	1	.	.	.	3	.	.	.	.	.	.	.	.
FT Sill, OK	100	77	.	.	.	.	1	1	.	.	.	.	.	.	1	1
SOUTHEAST																
FT Gordon, GA	220	312	.	.	.	.	.	.	.	.	.	9	1	.	.	.
FT Benning, GA	170	180	2	1	1	1	2	1	.	.	.	.	1	.	.	1
FT Campbell, KY	271	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FT Jackson, SC	117	85	.	.	.	.	.	.	.	.	.	.	1	.	.	.
FT Rucker, AL	20	25	1	.	.	.	.	.	.	5	.	.	.	.	.	.
FT Stewart, GA	302	459	.	1	.	.	1	4	3	9	.	.	4	1	3	1
WESTERN																
FT Lewis, WA	284	268	.	1	.	1	.	1	.	1	.	.	.	.	1	1
FT Irwin, CA	35	40	.	1	.	.	.	1	.	.	.	.	.	.	.	.
FT Wainwright, AK	77	154	.	1	.	.	1	.	.	1	.	.	.	.	.	.
OTHER LOCATIONS																
FT Shafter, HI	414	330	11	12	.	.	7	8	1	.	.	.	2	.	.	.
Germany	369	332	6	4	.	1	4	2	.	1	.	.	1	.	1	1
Korea	218	260	.	.	.	.	.	.	.	.	.	.	2	.	2	2
Total	5,968	5,973	37	33	5	15	36	42	8	25	0	0	17	20	15	21

*Reports received by June 7, 2006 and 2007

†Seventy medical events/conditions specified by Tri-Service Reportable Events, May 2004.

Note: Completeness and timeliness of reporting vary by facility.

Sentinel reportable events for service members and beneficiaries at U.S. Army medical facilities, cumulative numbers* for calendar years through May 2006 and May 2007



Army

Reporting location	Arthropod-borne				Sexually transmitted								Environmental			
	Lyme disease		Malaria		Chlamydia		Gonorrhea		Syphilis [‡]		Urethritis [§]		Cold		Heat	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
NORTH ATLANTIC																
Washington, DC Area	.	1	1	.	64	67	10	9	1	2	1	.	.	.	.	.
Aberdeen, MD	7	10	1	3	.	.	.	.	.	.	.	.
FT Belvoir, VA	83	71	18	10	.	2	.	.	.	.	.	.
FT Bragg, NC	.	.	4	1	479	385	72	67	3	.	62	40	1	1	26	14
FT Drum, NY	81	62	14	13	.	.	.	.	.	.	.	.
FT Eustis, VA	63	71	20	2	.	.	.	.	.	.	1	1
FT Knox, KY	2	.	.	.	71	101	15	17	.	.	.	.	3	.	.	.
FT Lee, VA	.	1	.	.	132	151	24	23	.	.	.	.	.	1	.	.
FT Meade, MD	41	17	7	5	.	1	.	.	.	1	.	.
West Point, NY	.	2	.	.	11	8	.	.	.	.	.	.	1	.	.	.
GREAT PLAINS																
FT Sam Houston, TX	.	1	1	.	135	144	26	26	2	2	.	.	.	.	.	1
FT Bliss, TX	117	121	26	26	1	2	.	.	.	.	.	.
FT Carson, CO	218	202	46	32	.	1	18	5	.	1	.	.
FT Hood, TX	466	659	128	98	.	1	13	51	.	.	5	.
FT Huachuca, AZ	19	38	2	6	.	.	.	.	1	.	.	.
FT Leavenworth, KS	13	18	2	2	.	.	.	.	.	.	.	.
FT Leonard Wood, MO	83	120	8	20	.	1	.	.	.	2	1	2
FT Polk, LA	.	.	.	14	63	44	20	8	1	1	.	.	.	.	.	2
FT Riley, KS	43	87	5	5	.	.	.	.	.	.	.	2
FT Sill, OK	30	53	10	14	2	.	.	.	.	1	.	2
SOUTHEAST																
FT Gordon, GA	148	220	31	31	.	1	2	.	.	.	1	.
FT Benning, GA	.	.	.	1	129	115	30	39	.	.	.	.	.	1	1	3
FT Campbell, KY	181	.	28	.	.	.	.	.	.	.	.	.
FT Jackson, SC	105	66	12	16	.	2	.	.	.	.	.	.
FT Rucker, AL	18	18	1	1	.	.	.	.	.	.	.	1
FT Stewart, GA	1	.	.	.	199	327	67	73	1	2	8	.	1	.	4	1
WESTERN																
FT Lewis, WA	.	.	2	1	218	232	34	19	.	.	22	6	.	.	.	.
FT Irwin, CA	30	29	3	3	2	.	.	.	.	.	.	5
FT Wainwright, AK	.	.	5	.	42	99	7	5	.	.	.	.	15	22	.	.
OTHER LOCATIONS																
FT Shafter, HI	.	.	1	.	302	228	45	26	.	.	.	.	.	.	2	2
Germany	6	7	1	4	234	204	80	56	.	1	1	3	.	.	.	8
Korea	.	.	2	1	162	214	41	22	1	.	.	1	2	20	.	.
Total	9	12	17	22	3,987	4,181	833	677	14	19	127	106	24	50	41	44

‡Primary and secondary.

§Urethritis, non-gonococcal (NGU).

Sentinel reportable events for service members and beneficiaries at U.S. Navy medical facilities, cumulative numbers* for calendar years through May 2006 and May 2007



Navy

Reporting location	Number of reports all events [†]		Food-borne								Vaccine preventable					
			Campylobacter		Giardia		Salmonella		Shigella		Hepatitis A		Hepatitis B		Varicella	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
NATIONAL CAPITOL AREA																
Annapolis, MD	16	0	.	.	1	.	.	.	.	.	.	.	.	.	.	.
Bethesda, MD	37	11	3	.	3	.	1	.	.	.	.	.	.	.	.	.
Patuxent River, MD	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NAVY MEDICINE EAST																
Albany, GA	6	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Atlanta, GA	5	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Beaufort, SC	75	82	.	.	.	.	1	.	.	1	.	.	.	.	.	.
Camp Lejeune, NC	208	103	.	.	.	.	2	.	.	.	.	.	.	.	.	.
Cherry Point, NC	42	39	.	.	1	.	2	.	.	.	.	.	.	.	.	.
Great Lakes, IL	0	72	.	.	.	1	.	1	.	.	.	.	.	.	.	.
Jacksonville, FL	74	88	.	1	.	.	4	2	.	2	.	.	.	.	.	.
Kings Bay, GA																
Mayport, FL	16	23	.	1	.	.	1	4	.	.	.	.	.	.	.	.
NABLC Norfolk, VA	10	26	.	.	.	.	1	.	.	.	.	.	.	.	.	.
NBMC Norfolk, VA	117	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NEHC Norfolk, VA	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
North Charleston, SC	0	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pensacola, FL	23	38	.	.	.	.	.	.	.	1	.	.	.	.	.	3
Portsmouth, VA	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington, DC	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guantanamo Bay, Cuba	0	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Europe	4	11	1	.	.	.	.	.	.	.	.	.	.	.	.	.
NAVY MEDICINE WEST																
Camp Pendleton, CA	36	10	.	.	.	.	3	.	.	.	.	2	.	.	.	.
Corpus Christi, TX	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fallon, NV	3	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ingleside, TX	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lemoore, CA	66	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pearl Harbor, HI	3	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
San Diego, CA	43	205	.	1	1	2	6	2	1	2	.	.	1	26	.	.
Guam	32	24	1	.	.	.	2	1	.	.	.	.	.	.	.	.
Japan	61	22	.	.	.	.	3	.	.	.	.	.	.	.	.	1
NAVAL SHIPS																
COMNAVAIRLANT/CINCLANTFLEET	59	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
COMNAVSURFPAC/CINCPACFLEET	15	17	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Total	956	794	5	3	6	3	26	10	1	6	0	0	3	26	0	5

*Reports received by June 7, 2006 and 2007

†Seventy medical events/conditions specified by Tri-Service Reportable Events, May 2004.

Note: Completeness and timeliness of reporting vary by facility.

Sentinel reportable events for service members and beneficiaries at U.S. Navy medical facilities, cumulative numbers* for calendar years through May 2006 and May 2007



Navy

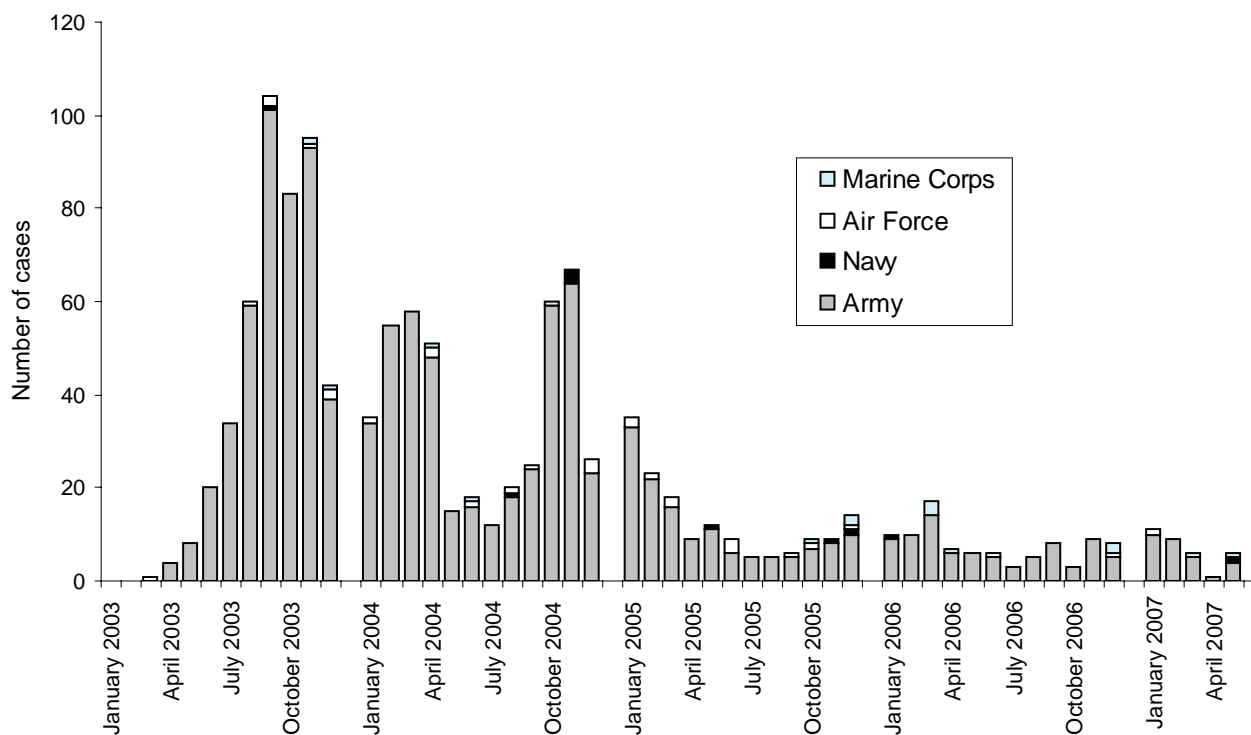
Reporting location	Arthropod-borne				Sexually transmitted								Environmental			
	Lyme disease		Malaria		Chlamydia		Gonorrhea		Syphilis [‡]		Urethritis [§]		Cold		Heat	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
NATIONAL CAPITOL AREA																
Annapolis, MD	13	.	2	.	.	.	.	.	.	.	.	.
Bethesda, MD	12	8	2	.	.	.	.	.	.	.	.	.
Patuxent River, MD
NAVY MEDICINE EAST																
Albany, GA	6	.	.	.	.	.	.	.	.	.	.	.
Atlanta, GA	3	1	2	1	.	1	.	.	.	.	.	.
Beaufort, SC	36	69	.	4	.	2	.	.	.	.	38	.
Camp Lejeune, NC	1	4	.	.	163	84	34	11	.	.	.	.	.	.	6	4
Cherry Point, NC	35	34	4	4	.	1	.	.	.	.	.	.
Great Lakes, IL	57	.	10	.	.	.	.	.	.	.	.
Jacksonville, FL	29	67	4	10	2	2	.	.	.	.	.	.
Kings Bay, GA																
Mayport, FL	15	15	.	.	.	1	.	.	.	.	.	.
NABLC Norfolk, VA	7	24	2	2	.	.	.	.	.	.	.	.
NBMC Norfolk, VA	91	7	21	1	1	.	.	.	.	.	.	.
NEHC Norfolk, VA	2	.	.	.	.	.	.	1	.	1	.
North Charleston, SC	3	.	.	.	.	.	.	.	.	.	.
Pensacola, FL	22	24	1	3	.	.	.	.	.	.	.	4
Portsmouth, VA	1	.	.	.	.	.	.	.	.	.	.	.
Washington, DC
Guantanamo Bay, Cuba	1	.	.	.	.	.	.	.	.	.	.
Europe	.	.	1	.	2	10	.	1	.	.	.	.	.	.	.	.
NAVY MEDICINE WEST																
Camp Pendleton, CA	31	8	.	1	.	1	.	.	.	.	.	.
Corpus Christi, TX	1	1	.	1	.	.	.	.	.	.	.	.
Fallon, NV	3	.	.	.	.	.	.	.	.	.	.	.
Ingleside, TX	1	.	.	.	.	.	.	.	.	.	.	.
Lemoore, CA	24	.	4	.	.	.	.	.	.	.	.	.
Pearl Harbor, HI	1	.	1	.	.	.	.	.	.	.	.	.
San Diego, CA	.	1	.	.	26	118	5	17	.	3	.	.	.	.	.	.
Guam	23	20	5	3	.	.	.	.	.	.	.	.
Japan	52	16	6	4	.	.	.	.	.	.	.	.
NAVAL SHIPS																
COMNAVAIRLANT/CINCLANTFLEET	1	.	.	.	48	4	9	.	1	.	.	.	.	.	.	.
COMNAVSURFPAC/CINCPACFLEET	6	11	6	5	.	.	3	.	.	.	.	.
Total	2	5	1	0	651	584	108	78	4	11	3	0	1	0	45	8

‡Primary and secondary.

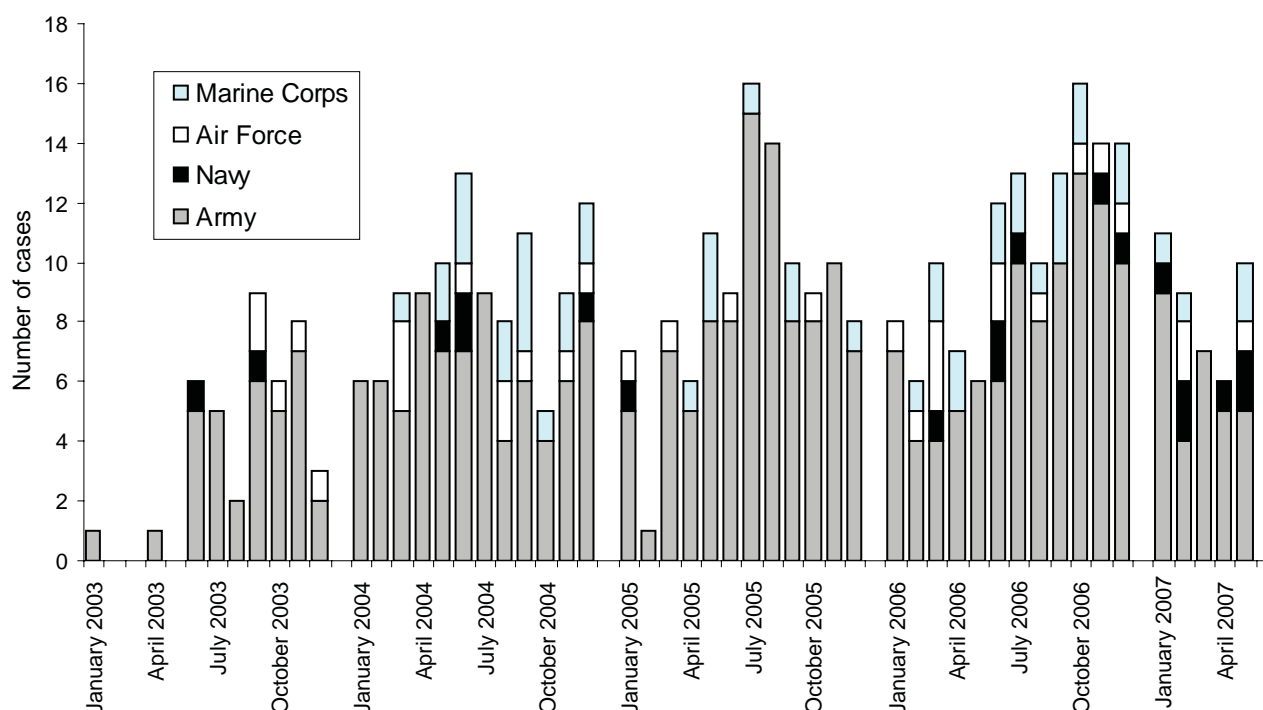
§Urethritis, non-gonococcal (NGU).

Deployment-related conditions of special surveillance interest, U.S. Armed Forces, by month and service, January 2003 - May 2007

Leishmaniasis (ICD-9: 085.0 to 085.9)*



Deep vein thrombophlebitis/pulmonary embolus (ICD-9: 415.1, 451.1, 451.81)†

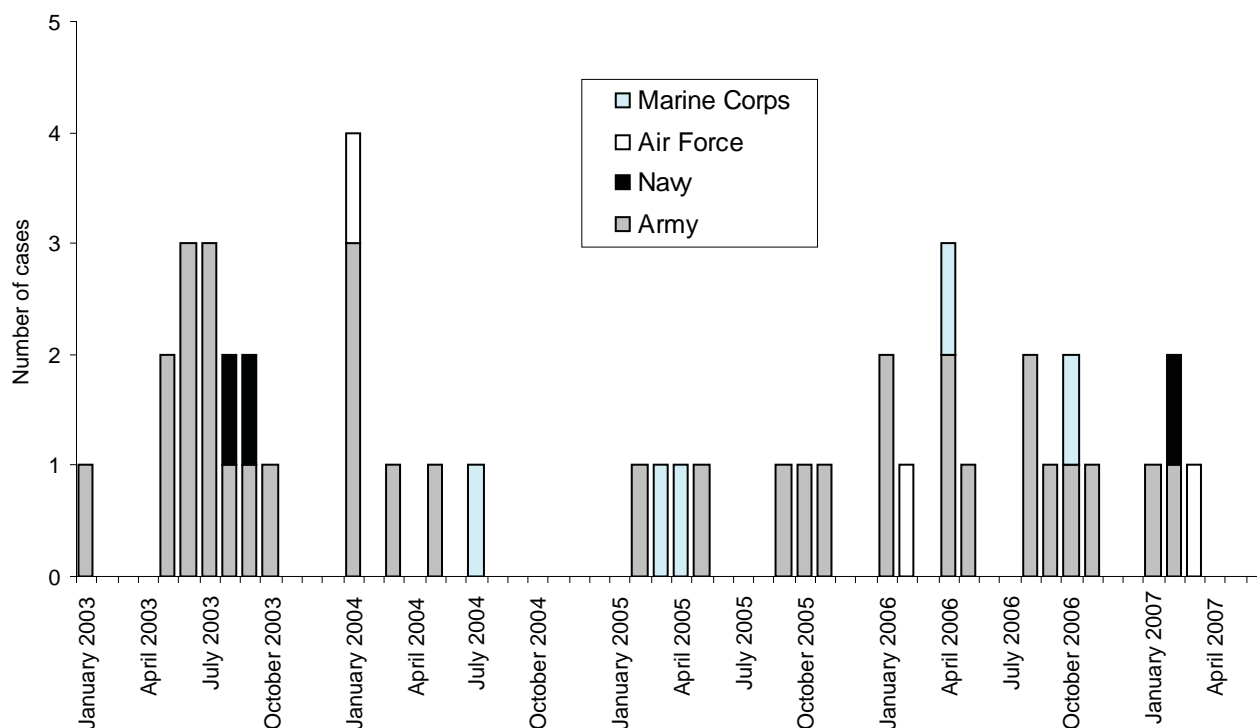


* Indicator diagnosis (one per individual) during a hospitalization, ambulatory visit, and/or from a notifiable medical event during/after service in OEF/OIF.

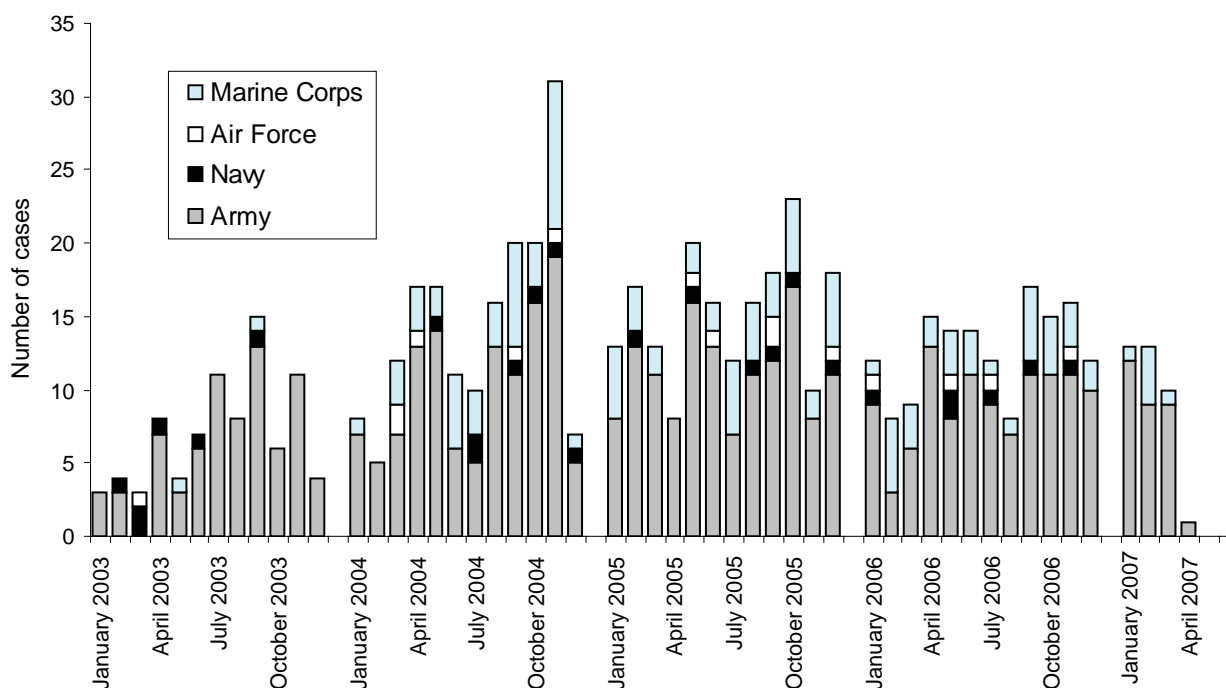
† Indicator diagnosis (one per individual) during a hospitalization while deployed to/within 30 days of returning from OEF/OIF.

Deployment-related conditions of special surveillance interest, U.S. Armed Forces, by month and service, January 2003 - May 2007

Severe acute pneumonia* (ICD-9: 518.81, 518.82, 518.3, 480-487, 786.09)†



Amputations (ICD-9: 887, 896, V49.6 to V49.7, PR 84.0 to PR 84.1)§



† Indicator diagnosis (one per individual) during a hospitalization or ambulatory visit while deployed to/within 30 days of returning from OEF/OIF.

§ Indicator diagnosis (one per individual) during a hospitalization of a servicemember during/after service in OEF/OIF.

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